

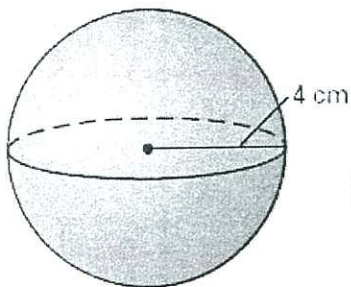
Name: Key 11 TP: _____

HW# 86H: Vol. & SA of Spheres
Due: Tuesday, April 16th
Honors Geometry

Failure to show all work and write in complete sentences will result in a LaSalle!

SA (Sphere) = $4\pi r^2$ Vol. (Sphere) = $\frac{4\pi r^3}{3}$

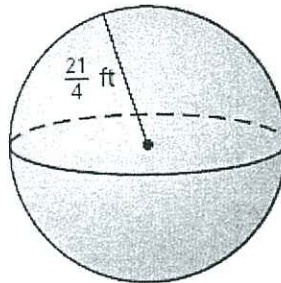
1) Find the surface area and volume of the sphere.



$r = 4$

Surface Area: $64\pi \text{ cm}^2$ Volume: $(\frac{256}{3})\pi \text{ cm}^3$
Surface Area: 201.06 Volume: 268.08 cm³

2) Find the surface area and volume of the sphere.



$r = \frac{21}{4}$

Surface Area: $(\frac{441}{4})\pi \text{ ft}^2$ Volume: $(\frac{3087}{16})\pi \text{ ft}^3$
Surface Area: 34.6 Volume: 606.13 ft³

3) What is the approximate radius of a sphere with a volume of 128π cubic centimeters?

$V = \frac{4\pi r^3}{3} \Rightarrow 128\pi = \frac{4}{3}r^3\pi \Rightarrow 384\pi = 4r^3\pi$

$\frac{384\pi}{\pi} = \frac{4r^3\pi}{\pi}$

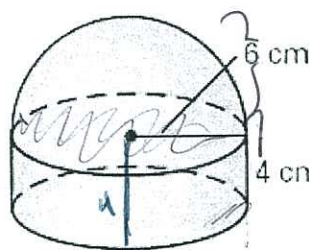
$\frac{384}{4} = \frac{4r^3}{4}$

$96 = r^3$

$\sqrt[3]{96} = r \approx 4.578$

- A. 2.5 cm
- B. 4.58 cm
- C. 6.62 cm
- D. 8 cm

4) Find the surface area and the volume of the solid. The cylinders and cones are right. Round your answer to two decimal places.



$r = 4$

$36\pi + 82(4)\pi$
 $36\pi + 48\pi$
 $84\pi + 226.19$

Surface Area: 490.1 cm² Volume: 904.78

$SA_{\text{cone}} = \frac{4\pi r^2}{2}$

$SA_{\text{cyl}} = 2\pi r^2 + 2\pi rh - \pi r^2$

$SA_{\text{total}} = \pi r^2 + 2\pi rh$

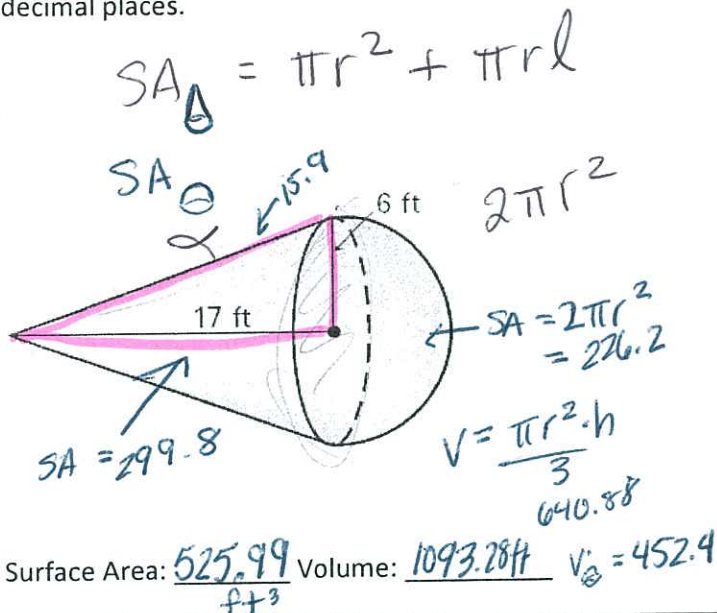
$V_{\text{cyl}} = \pi r^2 h = 144\pi$

$V_{\text{cone}} = \frac{1}{2}(4/3)(4)^3\pi$

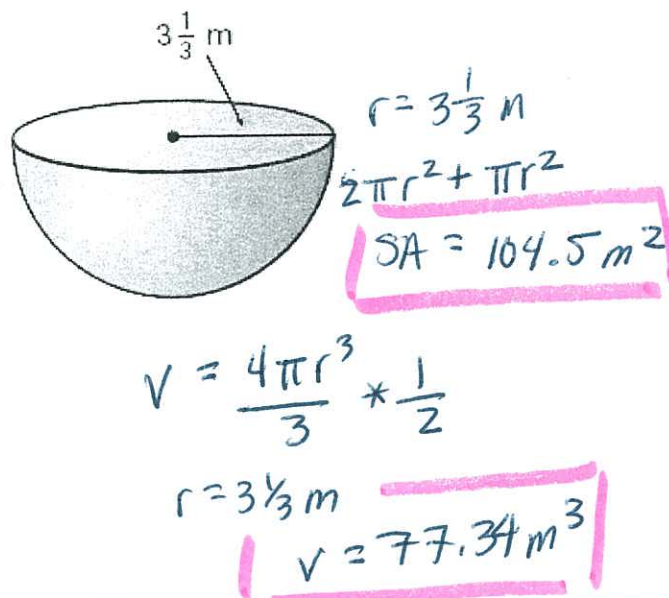
$904.78 = 144\pi + 144\pi$

PUSH IT TO THE LIMIT.

5) Find the surface area and the volume of the solid. The cylinders and cones are right. Round your answer to two decimal places.



6) Find the surface area and volume of the hemisphere. Round your answer to two decimal places.



7) Brandon is going to cover his bathroom with tiles, and he plans to put the tiles next to each other so there is no space in between them. The tiles are rectangular prisms that are 2 centimeters tall by 10 centimeters wide by 8 centimeters long. If Brandon's bathroom is a square that measures 4 meters by 4 meters, what is the minimum number of tiles he will need to fully cover his bathroom floor?

Step 1: Find MAX surface area of the tile.

$$10 \times 8 = 80 \text{ cm}^2$$

Step 3: Check/convert units if needed

$$\frac{16 \text{ m}^2}{1} \times \frac{10,000 \text{ cm}^2}{1 \text{ m}} = 160,000 \text{ cm}^2$$

Step 2: Find area of porch.

$$4 \text{ m} \times 4 \text{ m} = 16 \text{ m}^2$$

Step 4: Find # of tiles

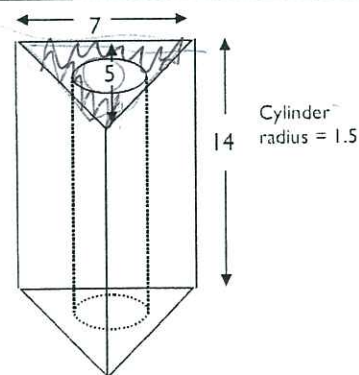
$$160,000 \div 80 = 2,000 \text{ tiles}$$

8) Find the volume of the following shapes. Round to the nearest hundred.

$$V_{\text{cyl}} = \pi r^2 h = (1.5)^2 14 \pi = 98.96$$

$$V_{\text{pyr}} = \left(\frac{1}{2}bh\right)h = \left(\frac{1}{2}(7)(5)\right) \times 14 = 245$$

$$V = 146.40$$



PUSH IT TO THE LIMIT.